

MEMORANDUM OF UNDERSTANDING

AMONG

THE MINISTER OF NATIONAL DEFENCE OF CANADA

THE MINISTER OF DEFENCE OF THE FRENCH REPUBLIC

THE FEDERAL MINISTRY OF DEFENCE OF

THE FEDERAL REPUBLIC OF GERMANY

THE MINISTER OF DEFENCE OF THE REPUBLIC OF ITALY

THE MINISTER OF DEFENCE OF THE KINGDOM OF THE NETHERLANDS

THE MINISTRY OF DEFENCE OF THE KINGDOM OF NORWAY

THE SECRETARY OF STATE FOR DEFENCE OF THE UNITED KINGDOM

OF GREAT BRITAIN AND NORTHERN IRELAND

AND

THE SECRETARY OF DEFENSE ON BEHALF OF THE DEPARTMENT OF

DEFENSE OF THE UNITED STATES OF AMERICA

FOR

INTEROPERABLE NETWORKS FOR SECURE COMMUNICATIONS

(SHORT TITLE: INSC)

Certified to be a true copy

 m.nh 3/8/01

Thomas Noble, Navy IPO-01C1

Deputy Director,

International Agreements

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INTRODUCTION

The Minister of National Defence of Canada, the Minister of Defence of the French Republic, the Federal Ministry of Defence of the Federal Republic of Germany, the Minister of Defence of the Republic of Italy, the Minister of Defence of the Kingdom of The Netherlands, the Ministry of Defence of the Kingdom of Norway, the Secretary of State for Defence of the United Kingdom of Great Britain and Northern Ireland, and the Secretary of Defense on behalf of the Department of Defense of the United States of America, hereinafter referred to as "the Participants":

having a common interest in defense;

recognizing the benefits to be obtained from standardization, rationalization, and interoperability of military equipments;

desiring to improve their mutual conventional defense capabilities through the application of emerging technology;

recognizing that the military requirement to transport ever increasing amounts of multiservice (voice, data, messages, imagery, and video) information in a seamless manner as a means to achieve information superiority, can only be achieved in an affordable manner through a mix of civilian technologies and services and military-specific, or militarized, technologies; and

desiring to demonstrate an interoperable, manageable and secure seamless military internetwork to improve secure interoperability among the Participants through the Interoperable Networks for Secure Communications (INSC) Project;

have reached the following understandings:

SECTION I

DEFINITIONS OF TERMS AND ABBREVIATIONS

1.1 Definitions of Terms

For the purposes of this Memorandum of Understanding (MOU), the following terms are defined:

Classified Information	Official information that requires protection in the interests of national security and is so designated by the application of a security classification marking.
Contract	Any mutually binding legal relationship which obligates a Contractor to furnish supplies or services, and obligates one or more of the Participants to pay for them.
Contractor	Any entity awarded a Contract by a Participant.
Contractor Project Background Information	Project Background Information generated and delivered by Contractors.
Contractor Project Foreground Information	Project Foreground Information generated and delivered by Contractors.
Controlled Unclassified Information	Unclassified information to which access or distribution limitations are applied in accordance with national laws or regulations. Whether the information is provided or generated under the MOU, the information will be marked to indicate its "in confidence" nature. It could include information which has been declassified, but remains controlled.
Defense Purposes	Manufacture or other use in any part of the world by or for the armed forces of a Participant.
Designated Security	The security organizations approved by national authorities to

Authority	be responsible for the security aspects of this MOU.
Government Project Background Information	Project Background Information generated by a Participant's military or civilian employees.
Government Project Foreground Information	Project Foreground Information generated by a Participant's military or civilian employees.
Patent	Legal protection of the right to exclude others from making, using, or selling an invention. The term refers to any and all patents as defined by national laws or regulations.
Project	The entire effort to be pursued under this MOU.
Project Background Information	Project Information which is not generated in the performance of this Project.
Project Equipment	Any physical assets other than Project Information, provided from one Participant to another Participant for the performance of this Project, including special jigs, tooling and factory test equipment.
Project Foreground Information	Project Information which is generated in the performance of this Project.
Project Information	Any information provided to, generated in, or used in this Project regardless of form or type, including, but not limited to, that of a scientific or technical nature, and also including photographs, reports, manuals, threat data, experimental data, test data, designs, specifications, processes, techniques, know-how, trade secrets, semiconductor topography/mask works, inventions (patented or not), drawings, technical writings, sound recordings, pictorial representations, and other graphical presentations, whether in magnetic tape, computer memory, or any other form and whether or not subject to copyright, patent, or other legal protection.

Project Invention

Any invention formulated or made in the course of work performed under this Project.

Project Plan

A document developed during Task 1 of this Project and approved by the Steering Committee (SC) which shows the details of the integrated tasks, schedule and resources required to accomplish the objectives of this MOU. It is the principal management document of the SC.

Third Party

Any person or other entity whose government or entity thereof is not a Participant in this MOU.

1.2 Abbreviations

The following abbreviations and expressions are used in this MOU, including its Annexes:

AC	Allied Committee
ATM	Asynchronous Transfer Mode
DNS	Domain Name Server
DSA	Designated Security Authority
EU	European Union
HF	High Frequency
INSC	Interoperable Networks for Secure Communications
IP	Internet Protocol
IPSec	IP Security
IPv6	Internet Protocol, version 6
ISDN	Integrated Services Digital Network
LAN	Local Area Network
NAU	NATO Accounting Unit
PCT	Protected Content Type
PE	Project Equipment
PSI	Project Security Instruction
QoS	Quality of Service
RSVP	Resource Reservation Protocol
SATCOM	Satellite Communications
SC	Steering Committee
SMTP	Simple Mail Transfer Protocol
TL	Task Leader
WWW	Worldwide Web
X.400	Specific Message Handling Protocol
X.509	Specific Authentication Framework
6Bone	Experimental IPv6 Network

SECTION II

OBJECTIVE

2.1. This is a technology application and development Project to develop and demonstrate an interoperable, manageable, and secure military internetwork over various military and civil subnetworks, including mobile networks, based on existing and emerging standards, and commercial services and products.

2.2. The objective of the Project is to design, implement, test and demonstrate a common technical architecture for interoperable secure networks which will lead to a basis for an international interoperability specification for secure communications for application by the Participants and subject to the conclusion of separate written arrangements, by organizations such as NATO.

2.3. The Project specifically addresses the communications challenges imposed by the highly mobile, regional, or littoral warfare environment involving air, sea, and land forces that is expected to be typical of future NATO and other coalition military operations. In such scenarios, the Participants will utilize a mix of national military, civilian, and NATO-owned networks located within countries containing NATO and national permanent command headquarters, in the theater of operations, and elsewhere and may use dissimilar technologies.

2.4. The Participants intend to utilize, to the maximum extent possible, commercial standards to minimize interoperability difficulties. Only those elements of the technical architecture which are military specific but not available from the open market, will be developed.

SECTION III

SCOPE OF WORK

3.1. To achieve the objective, all Participants will cooperatively design and implement a common technical architecture which will be tested, evaluated, and demonstrated using a mixture of various military and civilian assets. To achieve the testing, evaluation, and demonstration, each Participant will individually or cooperatively develop software and hardware as necessary to provide interoperability of different communication and information services within a common specified architecture. The tests, evaluations, and demonstrations will result in a final common technical architecture that can serve as a basis for implementation in national and coalition systems to provide interoperability.

3.2. The overall work performed under this Project will consist of eight separate task areas. A short description of these task areas is provided below. Annex A (Task Descriptions) provides additional detail to these tasks.

3.2.1. Task 1, System Architecture -- This task provides the framework and coordination for all other tasks and will involve all Participants. In this task, the INSC technical architecture will be developed and demonstrated. This task will also develop the Project Plan and the final Project report.

3.2.2. Task 2, Information Services -- This task will investigate and demonstrate how military-applicable information services can be supported by and benefit from the technologies and concepts of INSC. Specific areas of investigation and demonstration may include packetized voice, time-critical sensor information distribution, military messaging, multimedia conferencing, WWW services, and reliable multicast file distribution.

3.2.3. Task 3, Management of Large Networks -- This task will develop and demonstrate an effective network management capability for a mosaic of independently developed subnetworks, each with its own network management paradigms and local management entities, and many of which may be incompatible with those in other subnetworks.

3.2.4. Task 4, Security -- This task will investigate network layer security to determine whether the security features of the forthcoming IPv6 are adequate for military requirements, or if other solutions or enhancements are necessary. In addition, necessary application layer security elements will be identified and implemented.

3.2.5. Task 5, QoS Routing -- This task will examine emerging technologies covering: use of resource reservation protocols to support traffic with time restrictions; use of scheduling protocol to provide fair allocation of resources; use of flow labeling in IPv6 to identify particular QoS requirements; a common definition of QoS parameters across different subnetworks; reporting of QoS parameters from subnetworks to routers; mechanisms for enforcing priority within the network; mechanisms or procedures for common definition of users' QoS requirements; and unicast and multicast routing protocols for IPv6.

3.2.6. Task 6, Mobility -- This task will determine if the concept of mobile IP is adequate to be used in military networks and if functions within existing protocols can be used to monitor and control dynamic network topologies. Further developments for enhanced or new mobile protocols are anticipated under this task.

3.2.7. Task 7, Subnetworks -- This task will demonstrate the integration of commercial and military subnetworks into an INSC configuration with support of a number of defined subnetwork profiles.

3.2.8. Task 8, Directory Services -- This task will provide a directory service to be used to support network configuration, security, mobility, and management.

3.3. Cooperative efforts of the Participants over and above the work described in this section will be subject to future arrangements.

SECTION IV

SHARING OF TASKS

4.1. The work to be performed under this MOU will be shared among the Participants as shown below:

	CA	FR	GE	IT	NL	NO	UK	US
Task 1: System Architecture								
Design	✓	✓	✓	✓	✓	✓	✓	✓
Implementation	✓							
Testing	✓	✓	✓	✓	✓	✓	✓	✓
Task 2: Information Services								
Design	✓	✓	✓	✓	✓	✓	✓	✓
Implementation	✓	✓	✓	✓	✓	✓	✓	✓
Testing	✓	✓	✓	✓	✓	✓	✓	✓
Task 3: Management of large Networks								
Design	✓	✓	✓	✓	✓	✓	✓	✓
Implementation	✓		✓				✓	
Testing	✓	✓	✓	✓	✓	✓	✓	✓
Task 4: Security								
Design		✓	✓	✓	✓	✓		✓
Implementation		✓				✓		✓
Testing	✓	✓	✓	✓	✓	✓	✓	✓
Task 5: QoS - Routing								
Design	✓	✓	✓			✓	✓	✓
Implementation	✓	✓	✓				✓	✓
Testing	✓	✓	✓	✓	✓	✓	✓	✓
Task 6: Mobility								
Design	✓		✓	✓	✓			✓
Implementation	✓		✓					✓
Testing	✓	✓	✓	✓	✓		✓	✓
Task 7: Sub networks								
Design	✓	✓	✓	✓	✓	✓	✓	✓
Implementation	✓	✓	✓	✓	✓	✓	✓	✓
Testing	✓	✓	✓	✓	✓	✓	✓	✓
Task 8: Directory Service								
Design			✓			✓		✓
Testing	✓	✓	✓	✓	✓	✓	✓	✓

Design refers to initial planning and studies to determine what has to be implemented and tested under a task. Implementation refers to reduction of the design to practical realization. Testing refers to integration, evaluation, and demonstration of the working implementation and reporting of the results.

SECTION V

MANAGEMENT (ORGANIZATION AND RESPONSIBILITIES)

5.1. The INSC Project will be directed and administered on behalf of the Participants by a Steering Committee (SC). The SC will have primary responsibility for effective implementation, efficient management, and direction of the Project in accordance with this MOU. A Task Leader (TL) for each task specified in Section III (Scope of Work) will be designated by the SC.

5.2. The SC will consist of one representative appointed by each Participant. Members of the SC may be assisted by such additional persons as they choose. The SC will meet at least once a year, with additional meetings as determined by the SC. In principle, meetings will be held in the country of each Participant in turn. Each meeting of the SC will be chaired by the Chairman of the SC. The Chairman of the SC will be elected by the SC members for the duration of the Project. The Chairman will not vote. The Participant providing the Chairman will be entitled to have a voting member on the SC. The SC will make its decisions by unanimous consent. Where such consent cannot be reached, each member will submit the matter in dispute to its higher authority. In the meantime, the approved Project Plan will continue to be implemented without interruption while the issue is being resolved by such higher authorities.

5.3. The SC will be responsible for:

5.3.1. Exercising executive level oversight of the Project.

5.3.2. Approving the Project Plan and any revisions thereto.

5.3.3. Reviewing the technical progress of the Project against Annex A (Task Descriptions) and the Project Plan.

5.3.4. Reviewing the financial status of the Project to ensure compliance with Section VII (Financial Provisions).

5.3.5. Resolving issues brought forth by the TLs.

5.3.6. Recommending to the Participants amendments to this MOU in accordance with Section XVIII (Amendment, Withdrawal and Termination).

5.3.7. Developing, approving, and overseeing plans to manage and control the transfer of PE provided by a Participant in accordance with Section XIII (Project Equipment).

5.3.8. Providing recommendations to the Participants for the admission of new Participants in accordance with Section XVI (Admission of New Participants).

5.3.9. Monitoring Third Party sales and transfers authorized in accordance with Section IX (Third Party Sales and Transfers).

5.3.10. Reviewing the semi-annual status reports submitted by the TLs.

5.3.11. Maintaining oversight of the security aspects of the Project including developing and obtaining approval from the appropriate Designated Security Authority of a Project Security Instruction and a Classification Guide prior to the transfer of Classified or Controlled Unclassified Information.

5.4. Each TL will be responsible for:

5.4.1. The coordination of efforts within his task including management of the schedule, performance, and technical aspects.

5.4.2. The coordination of efforts between the tasks including facilitation of exchange of Project Information between TLs.

5.4.3. The monitoring of task progress.

5.4.4. The preparation of the semiannual status reports for submission to the SC.

5.4.5. Supporting the development and implementation of plans to manage and control the transfer of PE provided by a Participant in accordance with Section XIII (Project Equipment), including maintenance of a list of PE provided.

5.4.6. Implementing the Project Security Instruction and Classification Guide upon final DSA approval.

5.4.7. Referring issues to the SC that cannot be resolved by that TL.

5.5. As approved by the Participants, and coordinated among SC representatives and in accordance with Section IX (Third Party Sales and Transfers), the Chairman of the SC will provide periodical reports to NATO AC/322 (joint meeting of SC/5 and SC/6).